

Hyebin Park

• Email: hbpark09@seoultech.ac.kr

SUMMARY

AI and remote sensing researcher focusing on super-resolution and environmental variable downscaling using satellite and meteorological data. My work aims to improve fine-scale estimation of environmental variables, including GPP and air temperature, under observational constraints such as coarse resolution, sparse observations, and domain discrepancies.

EDUCATION

Seoul National University of Science and Technology Ph.D. in Applied Artificial Intelligence (in progress)	2026-Present
Seoul National University of Science and Technology M.S. in Applied Artificial Intelligence (GPA: 4.43/4.5 $\approx$ 3.94 / 4.00)	2024-2026
Seoul National University of Science and Technology B.S. in Applied Artificial Intelligence (GPA: 4.22/4.5 $\approx$ 3.75 / 4.00)	2021-2024

PROFESSIONAL APPOINTMENTS

Seoul National University of Science and Technology Graduate Research Assistant	2024-Present
Korea Institute of Science and Technology (KIST) Center for Climate and Carbon Cycle Research Research Assistant	2024
Seoul National University of Science and Technology Undergraduate Research Assistant	2022-2024

HONORS AND AWARDS

2025 Space Hackathon Excellence Award (2nd Place) Award from the President of the Korea Aerospace Research Institute Topic: An Open-Vocabulary VLM-Based Interactive Object Labeling Automation System	2025
2023 Early-Career Research Program on Satellite Imagery Utilization (3rd Place) Award from the Korean Society of Remote Sensing Topic: Detection of Open Manure Piles Using Deep Learning on KOMPSAT-2/3 Satellite Imagery	2023

PEER-REVIEWED PUBLICATIONS

A super-resolution framework for downscaling machine learning weather prediction toward 1-km air temperature Hyebin Park , Seonyoung Park, Daehyun Kang, Jeong-Hwan Kim <i>npj Climate and Atmospheric Science</i>	2026
Satellite-Based Cabbage and Radish Yield Prediction Using Deep Learning in Kangwon-do Hyebin Park , Yejin Lee, Seonyoung Park <i>Korean Journal of Remote Sensing</i>	2023

PROJECTS

Dataset Construction and Management for Training Satellite Imagery Foundation Models 2026-Present

Korean Society for Aeronautical and Space Sciences (KSAS)

Role: Development of foundation models and data valuation criteria

Development of AI-Based Prediction Technology for Compound Climate Extremes over Korea and Its Mechanisms 2025-Present

National Research Foundation of Korea (NRF)

Role: Meteorological variable downscaling

Remote Sensing-Based Extreme Climate Detection and Carbon Cycle Analysis 2025

Korea Institute of Science and Technology (KIST)

Role: GPP downscaling

Assessment of livestock manure status and environmental pollution - development of monitoring methods for livestock facility detection 2024-2025

National Institute of Environmental Research (NIER)

Role: Livestock roof generation for data augmentation, KOMPSAT-3 Super-resolution

PRESENTATIONS (INTERNATIONAL)

European Geosciences Union (EGU) 2026

Topic: Super-Resolution Machine Learning Weather Forecast for 1-km Air Temperature Prediction (Oral)

International Conference on Electronics, Information, and Communication (ICEIC) 2026

Topic: Resolution Enhancement of KOMPSAT-3 RGB Imagery Using Aerial Images (Oral)

IEEE International Geoscience and Remote Sensing Symposium (IGARSS) 2025

Topic: MODIS GPP Super-Resolution Using Reference Based SRGAN with Sentinel-2 (Oral)

Asia Oceania Geosciences Society (AOGS) 2024

Topic: Production of High Resolution GPP Using Sentinel-2 Images (Oral)

TEACHING ASSISTANT

Seoul National University of Science and Technology, Machine Learning 2025

- Designed and managed team-based machine learning projects

- Provided technical guidance and Q&A support on model implementation

- Guided students on core ML concepts and applications

RESEARCH EXPERTISE

Artificial Intelligence

Deep learning, computer vision, super-resolution, image generation, environmental prediction

Environmental Science

GPP and air temperature downscaling, particulate matter prediction, crop yield prediction

Remote Sensing (Satellite)

Experience with multi-resolution satellite data, including Sentinel-2, Landsat 8/9, MODIS, KOMPSAT-3, and GK2A, with proficiency in satellite data preprocessing and analysis